



**NUCLEAR DECOMMISSIONING CITIZENS ADVISORY PANEL
PUBLIC SERVICE DEPARTMENT**

**Nuclear Decommissioning
Citizens Advisory Panel
Annual Report to the Governor
and the Vermont Legislature**

2020

Published: January 2021
(Approved by the Panel on December 7, 2020)

At its December 7, 2020 meeting, the Panel directed several specific changes to this report for its January 2021 publication. No other changes have been implemented.)

1 **- Nuclear Decommissioning Citizens Advisory Panel -**
2 **2020 Annual Report to the Governor of Vermont and the**
3 **Energy Committees of the General Assembly**
4 (House Energy & Technology,
5 House Commerce & Economic Development,
6 House Natural Resources, Fish and Wildlife, and
7 Senate Natural Resources & Energy Committees)
8

9 **I. Statutory Authority and Duties**
10

11 The nineteen-member Vermont Nuclear Decommissioning Citizens Advisory Panel (NDCAP) was
12 established during the 2014 legislative session. For details on membership and duties, see
13 <https://legislature.vermont.gov/statutes/fullchapter/18/034>. The list of current members of the
14 Nuclear Decommissioning Citizens Advisory Panel may be found at
15 [http://publicservice.vermont.gov/electric/ndcap \(aka, the NDCAP website\)](http://publicservice.vermont.gov/electric/ndcap_aka_the_NDCAP_website). Changes in Panel
16 membership during 2020 may be discerned by reviewing the meeting minutes and meeting
17 recordings available at the NDCAP website.
18

19 **II. Charter**
20

21 The NDCAP Charter was adopted on February 25, 2015 and amended on May 26, 2016. The
22 Charter is available at
23 [https://publicservice.vermont.gov/sites/dps/files/documents/NDCAP/Amended%20NDCAP%20](https://publicservice.vermont.gov/sites/dps/files/documents/NDCAP/Amended%20NDCAP%20Charter%20%28Adopted%202016.05.26%29.pdf)
24 [Charter%20%28Adopted%202016.05.26%29.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/NDCAP/Amended%20NDCAP%20Charter%20%28Adopted%202016.05.26%29.pdf). No changes to the NDCAP Charter were made
25 during 2020. However, as detailed in Sections III and XIII, the Panel has continued discussions on
26 potential changes in NDCAP composition and duties that began in 2019. Several changes to the
27 legislation establishing the Panel were submitted to the Legislature in February 2020. Once
28 enacted, these legislative changes would require revising the NDCAP Charter.
29

30 **III. Meeting Highlights**
31

32 The NDCAP held five meetings in 2020; meetings were held in January, February, May, September
33 and December. All meetings were open to the public and opportunities for comments from the
34 public were provided. The February meeting focused on finalizing the Panel’s recommendations
35 for changes in its composition, funding and duties for consideration by the Vermont Legislature
36 during its 2020 session. The January, May September and December meetings included updates
37 on recent VY decommissioning activities by both NorthStar and the State of Vermont. Educational
38 and issue-specific topics were also discussed at these meetings. Opportunities for discussion and
39 comments from Panelists and the public on all covered topics were provided during each meeting.
40 A summary of each meeting is presented below.

41 The minutes of each meeting can be found on the NDCAP website (a dedicated section of the Public
42 Service Department website) at <http://publicservice.vermont.gov/electric/ndcap>. A complete
43 video or webcast recording for each meeting can be found at:
44 <https://www.brattleborotv.org/vt-nuclear-decommissioning-citizens-advisory-panel>.
45 (Links to these video recordings are also available through the NDCAP website).
46 Additional information regarding VY's active decommissioning is available at the Public Service
47 Department's recently launched "VY Decommissioning" website at:
48 <https://publicservice.vermont.gov/content/vermont-yankee-decommissioning>

49
50 **January 13, 2020**

- 51 • **Update on Decommissioning Activities at VY:** Panelist Corey Daniels, VY's Senior Spent
52 Fuel Storage Manager, provided a presentation that outlined ongoing Reactor Vessel
53 (Steam Separator) segmentation and Steam Turbine dismantling activities occurring
54 onsite. Onsite asbestos abatement work was also described. Planned demolitions of the
55 Advanced Off-Gas (AOG) Building and the Site "Shipping and Receiving" Warehouse were
56 described. A groundwater diversion system for the Turbine Building was also described.
57 It was also reported that Antioch University of New England has been contracted to
58 perform a VY site study / land use inventory for exploring site redevelopment options.
- 59 • **State of Vermont Decommissioning Activities:**
60 Panelist Emily Boedecker, Department of Environmental Conservation (DEC)
61 Commissioner, outlined DEC's and the Agency of Natural Resources (ANR) roles in
62 overseeing VY's non-radiological remediation and site restoration activities. DEC and
63 ANR actions in response to VY's activities reported in Corey Daniels' presentation were
64 described.
65 Panel Member Dr. Bill Irwin, Vermont Radiological and Toxicology Sciences Chief,
66 outlined Vermont Department of Health oversight at VY. Health's sampling and
67 monitoring programs for air, milk, groundwater, sediments, fish and water supplies
68 within the Vernon and Brattleboro vicinities were described. Monitoring program
69 results are available at [https://www.healthvermont.gov/health-](https://www.healthvermont.gov/health-environment/radiological-health/vermont-yankee)
70 [environment/radiological-health/vermont-yankee](https://www.healthvermont.gov/health-environment/radiological-health/vermont-yankee).
71 Jim Porter, Vermont Public Service Department Director of Public Advocacy, outlined
72 the Department's monitoring of the VY Decommissioning Project since the Panel's
73 December 2019 meeting. In general, the expenditures thus far on the project are
74 consistent with the observed progress for the project.
- 75 • **Review of Panel Legislation Changes:** The Panel reviewed proposed wording
76 changes to the Legislation the created the Panel, documents its composition and
77 identifies its duties (18 VSA §1700 to §1702). The first draft of the proposed is
78 available at [https://publicservice.vermont.gov/sites/dps/files/documents/20-](https://publicservice.vermont.gov/sites/dps/files/documents/20-0287_Sibilia_Draft_NDCAP_Legislation_Changes.pdf)
79 [0287_Sibilia Draft NDCAP Legislation Changes.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/20-0287_Sibilia_Draft_NDCAP_Legislation_Changes.pdf). After discussing these proposed
80 changes, the Panel voted that the changes should also include a means for NorthStar to
81 fund at least a portion of the Panel's expenses. The Panel agreed that an open
82 discussion on Panel expenses and potential means of funding the Panel was necessary.

83 It was agreed that this discussion would be the only topic on the agenda for the Panel's
84 next meeting (February 3, 2020).

- 85 • **Finalization & Approval of Annual Report to the VT Legislature:** The Panel reviewed
86 the draft of the 2019 Annual Report to the Legislature available at
87 [https://publicservice.vermont.gov/sites/dps/files/documents/2019_VT_NDCAP_Annual](https://publicservice.vermont.gov/sites/dps/files/documents/2019_VT_NDCAP_Annual_Report_Draft_2020.01.06_to_Panelists.pdf)
88 [Report Draft 2020.01.06 to Panelists.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/2019_VT_NDCAP_Annual_Report_Draft_2020.01.06_to_Panelists.pdf). Several changes to the draft were requested,
89 some of which State Nuclear Engineer Tony Leshinskie indicated would not be available
90 this evening. After a brief discussion, the Panel voted to approve the report and have it
91 published once the several requested changes had been incorporated.
- 92 • **During Public Comments** concern was expressed that the Panel meetings were not
93 adequately publicized. In response, State Nuclear Engineer Tony Leshinskie noted the
94 several ways that Panel meetings are publicized. He also reminded people that the Panel's
95 website (<https://publicservice.vermont.gov/electric/ndcap>) includes the most current
96 information on upcoming Full Panel and Committee meetings.
97 Dr. Christa Daniels briefly introduced herself as the director for the Antioch University of
98 New England (AUNE) project that will perform a VY site study / land use inventory for
99 potential redevelopment options.

100
101 **February 3, 2020**

102 The main purpose of this Panel Meeting was to discuss the Panel's operating costs and
103 examine potential funding options to cover these costs. Panelists (and Vermont
104 Representatives) Laura Sibilia and Sara Coffey outlined a legislative proposal for NorthStar to
105 cover the Panel's administrative expenses. Details of this proposal are available at:
106 [https://publicservice.vermont.gov/sites/dps/files/documents/20-](https://publicservice.vermont.gov/sites/dps/files/documents/20-0287_Sibilia_Draft_NDCAP_Legislation_Changes.pdf)
107 [0287_Sibilia Draft NDCAP Legislation Changes.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/20-0287_Sibilia_Draft_NDCAP_Legislation_Changes.pdf)

108
109 and in an accompanying cover letter:

110 [https://publicservice.vermont.gov/sites/dps/files/documents/Cover note for discussion pr](https://publicservice.vermont.gov/sites/dps/files/documents/Cover_note_for_discussion_proposal_1.28.2020.pdf)
111 [oposal 1.28.2020.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/Cover_note_for_discussion_proposal_1.28.2020.pdf)

112
113 The proposal provides for coverage of Panel administrative expenses, staff to address Panel
114 administration and communications, as well as an increase in the meeting per diem for eligible
115 Panelists to \$100. The proposal does not cover making experts available to the Panel.
116 Feedback from tonight's meeting can be factored into the final version of the proposal.

117
118 Public Service Commissioner June Tierney briefly discussed the summary of NDCAP
119 expenditures that the Public Service Department (PSD) compiled for FY2014 through FY2019.
120 (This summary is available at [https://publicservice.vermont.gov/content/summary-panel-](https://publicservice.vermont.gov/content/summary-panel-expenses-fy2014-through-fy2019)
121 [expenses-fy2014-through-fy2019](https://publicservice.vermont.gov/content/summary-panel-expenses-fy2014-through-fy2019).) The Commissioner noted some of the details that have
122 factored into the Panel's costs during her tenure, adding that PSD Staff and Agency Meeting
123 Attendance costs included in Sections II and III of the Summary were ineligible for billback to
124 Northstar. PSD expenditures for the Panel would likely not vary significantly without changes
125 in PSD-related legislation.

127 After some discussion by Panel members and feedback from members of the public attending
128 the meeting, Commissioner Tierney proposed an additional change to 18 VSA §1700 part
129 (g)(6) that would allow PSD to annually bill the owners of Vermont Yankee (currently
130 NorthStar) for reasonable Panel expenses, including hiring experts for the Panel. The Vermont
131 Yankee owners would have the right to dispute and settle on expenses through the Public
132 Utility Commission petitioning process. After additional Panel discussion, it was agreed that
133 Panel promotion / public engagement expenses should be included as eligible expenses.
134 Consensus developed that the \$35,000 annual limit on Panel expenses was reasonable. Greg
135 DiCarlo, NorthStar General Counsel (who was in the audience), indicated that what was being
136 discussed was a potentially workable solution. However, he would have to review this further
137 and report back to the Panel.

138
139 The proposed changes to 18 VSA §1700 through §1702 adopted by the Panel are available at:
140 <https://legislature.vermont.gov/bill/status/2020/H.740> (see “As Introduced” version).
141

142 **May 4, 2020**

143 In response to the COVID-19 pandemic, this meeting was conducted entirely by Skype webcast.

- 144 • **Status Report on Panel Legislation:** Legislation that the Panel had discussed at its
145 January and February 2020 meetings has been “set aside” while the Legislature addresses
146 COVID-19 pandemic issues. Scott State, NorthStar CEO reported that NorthStar has
147 decided to voluntarily contribute Panel funding on July 1, 2020 (up to \$35,000) as though
148 the Legislation had passed. VT Representative and Panel Member Laura Sibilia reported
149 that the bill has passed the Vermont House and is under consideration by the Vermont
150 Senate. While the bill will likely pass, it probably will not pass before July 1 due to other,
151 higher priority issues. Reps. Sibilia and Sara Coffey thanked NorthStar for their offer.
152 Public Service Commissioner June Tierney also thanked NorthStar for its offer and
153 indicated that the Public Service Department (PSD) will find a way to implement the offer,
154 if possible. (Potential legal hurdles must be considered.)
- 155 • **NorthStar Update on VY Site Decommissioning Activities:** NorthStar Panelist Corey
156 Daniels summarized decommissioning activities completed since January 2020. (Slides for
157 this presentation are available from the Panel’s website.) Current Reactor Vessel (RV)
158 segmentation activities are focused on completing RV Steam Separator segmentation and
159 packaging them for offsite shipment. Steam piping and valve cutting within the Turbine
160 Building were described. Ongoing remediation efforts for hazmat Areas of Concern (AOCs)
161 were outlined. The demolition of the remaining onsite warehouse has commenced.
- 162 • **Assessment of NorthStar 2019 Annual Project Report:** PSD Special Counsel Eric
163 Guzman outlined PSD’s fiscal oversight of the VY Decommissioning project required by the
164 Memorandum of Understanding (MOU) in effect as part of NorthStar’s purchase of VY.
165 Nick Capik and Mark Gymr of Four Points Group (FPG), PSD’s consultants for overseeing
166 the project, were also present to discuss the assessment. (Slides for this presentation are
167 available from the Panel’s website.) NorthStar’s required annual financial disclosures have
168 been received and assessed by PSD and FPG. Nuclear Decommissioning Trust (NDT) and
169 Site Restoration Trust (SRT) disbursements over the past year were evaluated. The end of

170 (2019) year balance of the NDT is approximately \$425 million; the SRT balance is
171 approximately \$62 million. Based on PSD and FPG reviews, no safety concerns for the
172 project were identified. The percentage of the project completed (~17.3% complete) is
173 consistent with the expenditures to date. The project is currently on track to be completed
174 within the funds available for the project. In response to Panel questions, FPG indicated
175 that “red flags” for the project would be:

- 176 1) a change in scope that would significantly increase project cost
177 (e.g., finding unexpected contamination),
- 178 2) a substantial change in schedule,
- 179 3) any change that would prevent NorthStar from making the financial assurances included
180 in the project agreement.

181 While there have been several schedular changes (mostly for RV segmentation), NorthStar
182 has taken corrective actions. The project’s financial assurance conditions have improved
183 in the past year.

184 • **Department of Environmental Conservation Update:** Gerold Noyes, Environmental
185 Engineer in the Department of Environmental Conservation’s (DEC’s) Waste Management
186 and Prevention Division outlined DEC’s oversight of VY’s decommissioning within the past
187 year. (Slides for this presentation are available from the Panel’s website.) DEC examined
188 the Supplemental Site Investigation (SSI) received on January 31, 2020, which updates the
189 initial Site Investigation and takes additional sampling in several Areas of Concern (AOCs).
190 Much of the additional sampling was soil sampling to assess contamination resulting from
191 fuel storage, transformer coolants and onsite vehicle maintenance activities. The SSI did
192 not find any new or significant contaminant sources. The SSI results will be used to
193 develop corrective action plans. Groundwater sampling conducted during 2019 was
194 described. DEC assessed whether the sampling was conducted consistently with project
195 plans. The report on this sampling will be published in the near future. The groundwater
196 intercept system was briefly described. The required permitting for this plan remains
197 under review. Corrective Action Plans for AOCs #3, 7 and 8 and a general corrective action
198 plan have been received. Most of the clean-up at these AOCs has been soil removals to
199 address oil spills. Public comments on the plans may be submitted via
200 <https://enb.vermont.gov/>. Onsite abatement for asbestos and lead paint continues.
201 Groundwater sampling has shown contaminations similar to that of a gas station.
202 Groundwater intercept well sampling will be done to assure that any water discharged to
203 the Connecticut River is not contaminated.

204 • **In response to questions from the Public:** Corey Daniels outlined the COVID-19
205 protective measures in place at VT Yankee. Face masks are required when working in
206 areas with other people. Work crew sizes have been reduced as much as possible. Remote
207 working has been implemented where possible. Additional site cleaning in common areas
208 has been implemented. Meals are being brought onto site to limit risk of exposure while
209 buying lunch. Additionally, workers are required to self-monitor their temperatures daily,
210 practice social distancing, report if they have been exposed to a potential or positive
211 COVID-19 case, and abide by a rules from the VT Governor’s current pandemic mitigation
212 executive orders. As of May 21, 2020, no one onsite has tested positive for COVID-19.

213 • **Panel Pursuit of National Decommissioning and Spent Fuel Issues:** Panel Vice-Chair
214 Lissa Weinmann requested discussion on this topic. The Panel’s duties call for the Panel to
215 advise the Governor and the Legislature on nuclear decommissioning related issues.
216 However, the Panel has issued very few advisory opinions. It may be appropriate for the
217 Panel to provide advisory opinions on national nuclear issues, particularly those related to
218 redevelopment of decommissioned sites (such as Vermont Yankee) impacted by spent fuel
219 disposal issues. The Panel should consider weighing in on one or more of the legislative
220 proposals before Congress regarding decommissioning and spent fuel management to
221 stimulate national action. There may be opportunities for the Panel to support NorthStar
222 in addressing spent fuel / nuclear waste issues, such as the push for licensing WCS’
223 proposed interim storage facility. The Panel is on the record as supporting interim storage
224 through a letter that former Chair Kate O’Connor signed onto in 2015. The Panel should
225 consider whether this position is still supported by most of its current members. After
226 some discussion, the Panel voted on whether a committee should be formed for drafting an
227 advisory opinion on interim spent fuel storage. The proposal was defeated 8 to 4 with 1
228 abstention. Several Panelists noted that they were open to discussing this issue again once
229 live meetings are again possible to assure appropriate public participation in the
230 discussion.

231 • **During Meeting Wrap-Up** concern was expressed that the Skype meeting platform was
232 not adequate for conducting Panel meetings solely as webcasts. State Nuclear Engineer
233 Tony Leshinskie apologized for the difficulties that were encountered during tonight’s
234 meeting. He committed to pursuing more capable platforms for the next Panel meeting.
235

236 **September 21, 2020**

237 • **NorthStar Update on VY Site Decommissioning Activities:** NorthStar Panelist Corey
238 Daniels summarized decommissioning activities completed since May 2020. (Slides for this
239 presentation are available from the Panel’s website.) Current Reactor Vessel (RV)
240 segmentation efforts are focused on removing Control Rod Guide Tubes and the Core Plate
241 near the RV bottom, completing Core Top Guide (upper grid) segmentation and packaging
242 its segments for shipment offsite. Steam piping and valve cutting within the Turbine
243 Building were described. Demolition of the remaining onsite warehouse has completed.
244 Demolition of the Advanced Off-Gas Building is nearing completion.

245 In response to a question from the Public, Corey Daniels briefly described the June 19
246 accident involving an empty radioactive waste cannister being delivered to the VY site: a
247 new, empty cannister transported by heavy haul, multi-axle truck to the site encountered a
248 road construction zone along its route. In avoiding the road construction, the trailer tires
249 hit soft ground, which prompted a rollover. The cannister sustained some cosmetic
250 damage; no injuries occurred. The cannister was recovered and brought to VY within 24
251 hours of the accident. Although not required, the NRC was notified of the incident. Since
252 that time, the cannister has been inspected, integrity tested and validated that it can be
253 safely used.

254 • **Public Service Department (PSD) Project Assessment and Update:** PSD Special Counsel
255 Eric Guzman updated the Panel on PSD’s fiscal and technical oversight of the VY

256 Decommissioning project. Based on review of expenditures and project progress thus far
257 this year, NorthStar remains on course to complete VY's Decommissioning within available
258 funding.

259 • **VT Agency of Natural Resources (ANR) / Department of Environmental Conservation**
260 **Project Update:** Gerold Noyes, Environmental Engineer in DEC's Waste Management and
261 Prevention Division outlined DEC's oversight of VY's decommissioning since the Panel's
262 May 4, 2020 meeting. Much of this oversight is a continuation of items provided in DEC's
263 May 4, 2020 presentation. No previously unknown site contaminations or concerns have
264 been identified. The DEC permit processes for modifying the onsite drinking water supply
265 and discharging groundwater from newly installed intercept wells to the Connecticut River
266 were discussed.

267 • **Vermont Department of Health Update:** Panel member Dr. Bill Irwin gave a verbal
268 summary of the Health's current oversight of Vermont Yankee decommissioning activities.
269 Bill has had several opportunities to observe ongoing VY activities, particularly in
270 partnership with DEC. Health participates in biweekly phone calls between NorthStar and
271 other State Agencies to discuss project progress. Two onsite inspections have occurred
272 since the start of the COVID-19 pandemic. Activities discussed in NorthStar's updates to the
273 Panel have been observed first-hand. Health is supporting DEC in the permitting process to
274 allow groundwater discharges to the Connecticut River. This support has included
275 discussion of monitoring options to assure that the discharges are radiologically clean.
276 Health continues to track and receive information on all radiological waste
277 shipments leaving VY. Health is notified of the departure date, time and activity
278 contained in each shipment. This information is shared with Vermont law
279 enforcement agencies and first responders in case an incident response become
280 necessary.

281 • **Two COVID-19 cases** were identified in the VT Yankee workforce. NorthStar's contact
282 tracing efforts in response to these cases were commended.

283 • **Current Status of US Nuclear Spent Fuel Policy:** Jim Hamilton, Executive Director of
284 The Nuclear Decommissioning Collaborative briefly summarized current options for
285 spent nuclear fuel storage and disposal allowed under current US spent nuclear fuel
286 policy (the Nuclear Waste Policy Act of 1982, with Amendments). Inaction to date on
287 spent nuclear fuel storage and disposal issues are due to "inaction costs" currently being
288 much less economically and politically expensive than those associated with setting a
289 policy direction. The impact of inaction costs is currently borne by several isolated
290 communities surrounding former nuclear power stations (e.g., VY, Yankee Rowe, etc.),
291 which have been easy to ignore. As higher profile power plants shutdown (e.g., Indian
292 Point near New York City, San Onofre between Los Angeles and San Diego, and Diablo
293 Canyon north of Los Angeles), the change in inaction costs could bring a shift in Federal
294 Policy.

295 Current options for storage and disposal of Vermont Yankee's spent nuclear fuel include:

- 296 ○ Send VT Yankee Spent Fuel to Yucca Mountain
- 297 ○ Send VT Yankee Spent Fuel to an Interim Storage Facility and then subsequently to
298 Yucca Mountain or Another (currently unidentified) Repository
- 299 ○ Send VT Yankee Spent Fuel Directly to Another (currently unidentified) Repository

- 300 ○ Use On-Site Deep Geologic Disposal (as proposed by deepisolation.com)
- 301 ○ No Change (use current dry cask storage indefinitely)

302
303 The last option incurs taxpayer costs because spent fuel facility owners such as VY regularly
304 sue the US Department of Energy for damages for its failure provide a national spent
305 nuclear fuel repository. Damages in such lawsuits are taxpayer dollars (from the Federal
306 government's "Judgement Fund").

- 307 • **Congressional Delegation Update on Spent Fuel Bills Before Congress:** The provided
308 update is summarized in Section X herein.
- 309 • **Numerous Public Comments** were received throughout this meeting voicing concerns
310 over radioactive waste and spent nuclear fuel storage and shipment practices within the
311 United States. The Panel received several requests to pursue these national concerns as
312 well as ongoing Vermont Yankee activities.
- 313 • **Status Report on VT NDCAP Legislation:** Panelist and VT State Representative Sara
314 Coffey reported that the proposed VT NDCAP legislation changes (to 18 VSA §§1700-1702)
315 adopted by the Panel at the February 3, 2020 meeting will probably not get through the
316 Legislature before the end of the year due to other higher legislative priorities (e.g., the state
317 budget and COVID-19 response). It is Reps. Coffey and Sibilias's intent to reintroduce this
318 legislation next year. Corey Daniels added that NorthStar remains committed to providing
319 financial support for the Panel of up to \$35,000 per year.
- 320 • **Panel 2020 Annual Report:** The Panel approved State Nuclear Engineer Tony Leshinski's
321 outline for the Annual Report. A draft of the Annual Report will be available at least one
322 week prior for review at least one week prior to the next Panel meeting.

323

324 **December 7, 2020**

- 325 • **NorthStar Update on Recent VY Site Decommissioning Activities:** Panel Member Corey
326 Daniels, NorthStar Senior ISFSI (spent fuel storage) Manager at Vermont Yankee, presented
327 a summary of recent site decommissioning activities. Current Reactor Vessel (RV)
328 segmentation, Turbine Building equipment removal and site demolition activities were
329 described. In response to public questions, Corey Daniels agreed to provide more
330 information on the radiological doses that Vermont Yankee workers have received during
331 decommissioning.
- 332 • **Vermont State Agencies' Update on VY Decommissioning:** VT Public Service Department
333 (PSD) Special Counsel Eric Guzman provided a brief presentation on PSD's continuing
334 financial and technical reviews of Vermont Yankee's decommissioning. PSD's primary
335 responsibility is to confirm that the work completed to date is reasonable after considering
336 the NorthStar's reimbursement requests from the Nuclear Decommissioning Trust (NDT) to
337 date. Site visits to observe completed work have been limited by the COVID-19
338 pandemic. However, recent site visits confirm that project progress is consistent
339 with that described in NorthStar's recent status reports. NorthStar remains on
340 course to complete the project with available funding.

341 Further details of PSD’s tracking of VY’s decommissioning are available at PSD’s
342 dedicated Vermont Yankee website at:
343 <https://publicservice.vermont.gov/content/vermont-yankee-decommissioning>.
344 Monthly balances for Vermont Yankee’s Nuclear Decommissioning Trust (NDT) and Site
345 Restoration (SRT) funds are available at this website, along with summaries of the
346 decommissioning expenditures that PSD receives monthly.

- 347 • Gerold Noyes, Environmental Engineer in the Department of Environmental Conservation’s
348 (DEC’s) Waste Management and Prevention Division outlined DEC’s oversight of VY’s
349 Decommissioning through Supplemental Site Investigations (SSIs), review of Corrective
350 Action Plans and hazardous materials remediations (including asbestos and lead paint
351 abatements), groundwater sampling, observations of work-practices, and reviews of post-
352 demolition sampling plans. Thus far, no contaminant sources outside of previously
353 identified Areas of Concern (AOCs) have been found at the VT Yankee site.
- 354 • Panel Member Dr. Bill Irwin, Vermont Radiological and Toxicology Sciences Chief, outlined
355 Vermont Department of Health oversight at VT Yankee. Health continues to assist DEC
356 in its oversight of VT Yankee activities. NorthStar was commended on its adherence
357 to VT Department of Health COVID-19 protocols and the thoroughness of
358 NorthStar’s contract tracing in response to the several COVID-19 cases within the
359 VT Yankee workforce.
- 360 • **Panel Advisory Opinion on Interim Spent Fuel Storage:** Due to a concern that a letter
361 that the Panel Chair signed in 2015 puts the Panel on record as supporting
362 Consolidated Interim Spent Fuel Storage Facilities (CISFs), the Panel approved a
363 motion (8-1 vote with 4 abstentions) to state that it currently has no position on
364 CISFs. In a 12 to 1 vote, the Panel created a Federal Nuclear Waste Policy
365 Subcommittee to learn more about national spent fuel storage and disposal
366 concerns. Lissa Weinmann agreed to Chair this subcommittee.
367 Further discussion of spent fuel storage and disposal Advisory Opinions will be
368 conducted during Panel meetings in 2021.
- 369 • **Draft Annual Report for 2020:** The Panel reviewed the 2020 Annual Report to the
370 Legislature draft available at:
371 <https://publicservice.vermont.gov/content/2020-annual-report-draft> Several changes to
372 the draft were requested, some of which State Nuclear Engineer Tony Leshinskie indicated
373 would not be available until after December 31. After a brief discussion, the Panel agreed
374 that the Annual Report should note that 1) the Panel has no position on Consolidated
375 Interim Spent Fuel Storage Facilities and 2) the Panel has created a Federal Nuclear
376 Waste Policy Subcommittee to learn more about national spent fuel storage and
377 disposal concerns. The Panel voted unanimously to approve the report and have it
378 published once these requested changes are incorporated.
- 379 • **Election of New Panel Officers:** In separate votes, Emily Davis was elected Panel Chair
380 and Josh Unruh was elected Panel Vice-Chair for terms of 1 year. Josh Unruh was thanked
381 for his service as Panel Chair in 2020.

382

383 **IV. Major Milestones and Activities at the Vermont Yankee Site**

384

- 385 • 1/6 Site Decommissioning Activities resume following Holiday Break
- 386 • 1/6 Reactor Vessel (RV) Steam Separator segmentation underway; Turbine disassembly
387 Resumes; Turbine Building piping and Advanced Off-Gas (AOG) Building equipment
388 removal underway; Radioactive waste shipments via railcars resume
- 389 • 1/20 First Nuclear Regulatory Commission (NRC) onsite inspection of the year occurs
390 this week
- 391 • 1/24 Onsite First-Aid training and recertifications completed
- 392 • 1/28 Control Rod Storage Rack removed from Spent Fuel Pool for segmentation
- 393 • 2/13 RV Steam Separator Standpipes segmentation begins
- 394 • 2/24 Fabric “Big Top” storage structure erected in North Parking Lot
- 395 • 3/2 Second NRC onsite inspection of the year occurs this week
- 396 • 3/5 VT Yankee site Flu Season / COVID-19 Precautions implemented
- 397 • 3/6 Segmentation of RV Steam Separator upper half completed
- 398 • 3/10 RV Shield Plug segmentation completed
- 399 • 3/31 Northstar files required Annual VY Decommissioning Trust Fund and Spent
400 Fuel Management Fund reports
- 401 • 4/1 VY “Tabletop” Site Emergency Drills Completed
- 402 • 4/10 Segmentation of RV Steam Separator lower half completed
- 403 • 4/13 RV Feedwater Sparger Segmentation begins
- 404 • 4/30 NorthStar files NRC-required biennial Quality Procedures status report
- 405 • 5/4 Second shift for RV Segmentation work implemented
- 406 Demolition of “Shipping & Receiving” Warehouse begins
- 407 • 5/7 RV Feedwater Sparger Segmentation completed
- 408 • 5/8 Demolition of Shipping & Receiving Warehouse completed
- 409 • 5/11 RV Core Spray Sparger Segmentation begins
- 410 • 5/15 RV Steam Separator segments packaged for shipment offsite
- 411 • 5/19 Clearing of Shipping & Receiving Warehouse debris completed
- 412 • 5/20 Quarterly groundwater sampling completed
- 413 • 5/28 RV Upper Core Plate (Top Guide) removed for segmentation
- 414 • 5/29 RV Core Spray Sparger and upper Core Shroud Segmentation completed
- 415 • 6/11 Demolition of abandoned site security gatehouses completed
- 416 • 6/12 Annual site roadway assessment completed (required by Town of Vernon)
- 417 • 6/15 Reactor Control Rods (blades) segmentation and removal from RV begins
- 418 • 6/19 Truck rollover accident involving new, empty VY radioactive waste cannister
- 419 • 6/22 Third NRC onsite inspection of the year occurs this week (first since pandemic)
- 420 • 6/23 Reactor Control Rods removal from RV completed
- 421 • 6/25 NRC Early 2020 Inspection Exit Meeting – no issues, findings, or violations

- 422 • 6/25 Last equipment from Advanced Off-Gas (AOG) Building removed.
- 423 Building deemed radiologically clean
- 424 • 6/30 AOG Building demolition begins
- 425 • 6/30 Contact tracing and subsequent testing fail to find any COVID-19 cases at VY after
- 426 a site worker reports symptoms
- 427 • 7/16 First VY Low-Level Radwaste shipment using MP-197HB railcar (qualified for
- 428 high-level radwaste shipments) leaves site
- 429 • 7/22 RV Upper Core Plate (Top Guide) segmentation completed
- 430 • 7/27 Removal of Control Rod Guide Tubes and Core Plate Hold-Down Bolts begins
- 431 • 8/7 Two onsite workers test positive for COVID-19; both cases are asymptomatic.
- 432 Contact tracing and subsequent testing does not find any additional cases;
- 433 21 onsite workers isolated as a precaution
- 434 • 8/24 Fourth NRC onsite inspection of the year occurs this week
- 435 • 8/26 Quarterly groundwater sampling completed
- 436 • 9/17 Plant Support Building well implemented as site-wide potable water supply
- 437 • 9/28 Plant Support Building well water certified as site drinking water supply
- 438 • 10/2 Control Rod Guide Tubes and Core Plate Hold-Down Bolts removal completed
- 439 • 10/7 Disassembly of (steam plant) Electric Generator begins
- 440 • 10/8 Core Plate removed from RV for segmentation
- 441 • 10/13 Fifth NRC onsite inspection of the year occurs this week
- 442 • 10/14 Required NRC triennial inspection of spent fuel dry casks and dry cask storage
- 443 pads completed
- 444 • 10/19 RV Core Spray Piping removal begins
- 445 • 10/22 RV Core Plate segmentation begins
- 446 • 11/2 RV Core Spray Piping removal completed
- 447 • 11/3 Disassembly of Main and Auxiliary Transformers begins
- 448 • 11/5 RV In-Core Instrumentation Piping removal begins
- 449 Demolition of Advanced Off-Gas Building (above ground portion) completed
- 450 • 11/9 Demolition of Turbine Building South End (former site maintenance shop) begins
- 451 • 11/13 Removal of Main and Auxiliary Transformers completed
- 452 • 11/18 Onsite Radiological Emergency Drill Completed
- 453 • 11/19 Quarterly groundwater sampling completed
- 454 • 12/2 Demolition of Turbine Building South End (site maintenance shop) completed
- 455 • 12/7 Sixth and final NRC onsite inspection of the year occurs this week
- 456 • 12/10 NRC Late-2020 Inspection Exit Meeting – no issues, findings, or violations
- 457 • 12/11 RV Core Plate segmentation completed
- 458 • 12/14 RV In-Core Instrumentation Piping removal completed
- 459
- 460
- 461

462 **V. Nuclear Decommissioning Trust (NDT) and Site Restoration Trust (SRT) Fund Updates**
463 *(based on latest available data for 2020).*

464	NDT	SRT
466	\$428.3 M Balance on December 31, 2019	\$62.3 M Balance on December 31, 2019
467	\$425.4 M Balance on March 31, 2020	\$64.4 M Balance on March 31, 2020
468	\$407.9 M Balance on June 30, 2020	\$64.2 M Balance on June 30, 2020
469	\$389.5 M Balance on August 31, 2020	\$63.7 M Balance on August 31, 2020
470	\$382.7 M Balance on September 30, 2020	\$63.4 M Balance on September 30, 2020
471	\$361.1 M Balance on December 31, 2020	\$62.4 M Balance on December 31, 2020

472
473 Monthly balances for the NDT and SRT are available at:
474 <https://publicservice.vermont.gov/content/trust-balances>.

475
476 Summaries of monthly expenditures for the Vermont Yankee Decommissioning Project are
477 available: <https://publicservice.vermont.gov/content/public-reports>.

478
479 **VI. Spent Nuclear Fuel Status at Vermont Yankee**

480 Transfer of VY's entire spent fuel inventory to dry cask storage was completed on August 1,
481 2018. No changes to VY's spent fuel storage have occurred since then. A total of 58 dry casks,
482 holding a total of 3,880 spent fuel assemblies, are stored at the VY Independent Spent Fuel
483 Storage Installation (ISFSI). VY's spent fuel will remain stored at the VY ISFSI until such time
484 that the US Department of Energy fulfills its obligation to provide a national spent nuclear fuel
485 repository.

486
487 A total of 7 vacant cask spaces remain on the ISFSI pads. Four of these are required should the
488 arrangement of the dry casks on the two ISFSI pads need to be changed for any reason. The
489 remaining three spaces are designated for storing Greater than Class C (GTCC) Low Level
490 Nuclear Waste (e.g., highly contaminated VY Reactor Vessel internal components) resulting from
491 VY's active decommissioning. It is currently anticipated that the GTCC Nuclear Waste from VY's
492 decommissioning can be stored in one GTCC waste container. A GTCC waste container will be
493 loaded and moved to the VY ISFSI in the future. Since no US low level radioactive waste disposal
494 facilities are currently licensed to accept GTCC waste, all VY GTCC waste must be stored onsite.

495
496 **VII. Significant Vermont Yankee Site Changes**

497 Monitoring of the Vermont Yankee Spent Nuclear Fuel is controlled from the site's Central Alarm
498 Station (CAS) Building, which became operational on August 23, 2018. No significant changes to
499 Vermont Yankee's spent fuel monitoring programs occurred during 2020. All Vermont Yankee
500 site changes that occurred during 2020 were the result of continuing decommissioning activities
501 which commenced on January 11, 2019.

502

- 503 The following onsite structures were demolished during 2020:
- 504 • The “Shipping and Receiving” Warehouse (last onsite warehouse structure)
 - 505 • Abandoned 75,000 gallon Fuel Oil Storage Tank
 - 506 • Two abandoned site security (North and West SOCA) gatehouses
 - 507 • The Advanced Off-Gas (AOG) Building
 - 508 • The abandoned Main and Auxiliary (power transmission) Transformers
 - 509 • Turbine Building South End (former onsite equipment maintenance shop)
 - 510 • Majority of fencing and vehicle barricades surrounding the “power block” buildings

511

512 The concrete pads for the Shipping and Receiving Warehouse and the AOG Building remain in
513 place. The below grade structures for the AOG Building and the Transformer pad also remain in
514 place. Fencing and vehicle barricades along the VY property line remain in place. None of these
515 changes impact the security barriers surrounding the VY ISFSI.

516

517 Road repairs at VY’s main entrance have been made. The rail crossing adjacent to the Plant
518 Support Building has been upgraded.

519

520 Plant Support Building water well is now being used as the potable water supply for the entire
521 VY site.

522

523 **VIII. Vermont Yankee Water Management Program**

- 524 • The rate of groundwater entering the Turbine Building is consistent with rates seen in 2018
525 and 2019.
 - 526 ○ Seasonal variations to date produced a rate range between 200 and 300 gallons per
527 day (consistent with low end of the rates range seen during 2018 and 2019)
 - 528 ○ At End of Year the rate was below 300 gallons per day (last reported as 250 gallons
529 per day as of 11/24/2020; similar to the 2017 and 2019 end of year rates).
 - 530 ○ Over 90% reduction in leakage since 2015 (consistent with 2018 and 2019 rates)
- 531 • Roughly 202,500 gallons have shipped in 2020
 - 532 ○ 92,729gallons of which have shipped to Waste Control Specialists (WCS) NRC-
533 licensed disposal site in Andrews County, Texas.
 - 534 ○ 109,756 gallons have shipped to US Ecology’s hazardous waste disposal facility in
535 Grandview, Idaho. (Vermont Yankee was licensed by the NRC to ship up to
536 200,000 gallons of contaminated water to this facility; Shipment of ~109,800
537 gallons was permitted in 2020 after ~92,400 gallons were shipped to this facility in
538 2019.)
 - 539 ○ All 2020 water shipments made were via tanker rail cars; 9 rail shipments in total.
 - 540 ○ Groundwater shipments to WCS and US Ecology facilities continue “as-needed.”
- 541 • A total of 1,258,000 gallons have been shipped to date
- 542 • Onsite water storage (using VY’s former Condenser) can hold water as much as 820,000
543 gallons of contaminated water, if necessary, until appropriate disposal arrangements are
544 made.

- 545
- No water discharges to the Connecticut River have occurred.
 - A system of water diversion wells along the Turbine Building periphery has been installed to mitigate the need for future water shipments. A water discharge permit is under Department of Environmental Conservation review that would allow diverted, uncontaminated water to be discharged to the Connecticut River.
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551 **IX. Decommissioning Waste Shipments Summary**

552

553 A summary of radiological and hazardous waste shipments made from the Vermont Yankee site
554 during 2020 follows.

555 **IX.A Radioactive Waste Shipments Summary**

556

557 An annual summary of Vermont Yankee’s radioactive waste shipments is published in mid-May
558 of the following calendar year as part of the “Radioactive Effluent Release Report” filed with the
559 US Nuclear Regulatory Commission and the Vermont Public Service Department. Preliminary
560 radioactive waste volume data available as of December 31, 2020 indicates that approximately
561 309,152 cubic feet of radioactive waste was shipped from the Vermont Yankee site during 2020
562 (significantly higher than the 144,907 cubic feet of radioactive waste shipped in 2019). The total
563 weight of the waste shipped in 2020 exceeds 19,000,000 pounds (>9,500 tons). The total
564 activity of the shipped waste is 522.8 Curies (up from the 126.8 Curies shipped in 2019).
565 Excluding the contaminated water shipments to US Ecology reported in Section VIII herein, all
566 2020 calendar year radioactive waste shipments were sent to Waste Control Specialists’ (WCS)
567 disposal facility Andrews County, Texas. All 2020 calendar year shipments were made via
568 railcar.

569

570 In response to Public questions at the September 21, 2020 Panel meeting, the total activity of
571 radioactive waste stored at the VT Yankee site is estimated as follows:

572

- Total activity stored at the VY Independent Spent Fuel Storage Installation (ISFSI), consisting of 3880 spent fuel bundles stored in 58 spent fuel canisters: 117,176,000 Curies
- The Greater Than Class C radioactive waste cask to be stored at the VY ISFSI will contain approximately 150,000 Curies once loaded.

577 The majority of the remaining radioactive waste to be shipped offsite with significant
578 radioactivity is comprised of select Reactor Vessel internal components. These components are
579 expected to contain approximately 21,000 Curies.

580

581 **IX.B Hazardous Waste Shipments Summary**

582

- 437 tons of construction and demolition debris was shipped to the following facilities:
 - Western Recycling, Wilbraham, MA
 - Millbury C&D Processing Station, Millbury, MA
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- 585
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- 598
- 7,575 tons of concrete was shipped to the following facility:
 - Ondrick Materials and Recycling, LLC, Chicopee, MA
 - 100 cubic yards of asbestos was shipped to the following facility:
 - Minerva Landfill, Waynesburg, OH
 - 265 tons of ferrous scrap metal was shipped to the following facility for recycling:
 - Mattuchio Scrap Metal, Everett, MA
 - 127,400 pounds (63.7 tons) of non-ferrous scrap metal was shipped to the following facilities for recycling:
 - HH&M Scrap Metals, Everett, MA
 - Mattuchio Scrap Metal, Everett, MA

599 **X. Vermont Congressional Delegation**

600

601 Representatives of Senator Patrick Leahy, Senator Bernie Sanders, and Congressman Peter

602 Welch attended several NDCAP meetings in 2020. At the September 21, 2020 meeting, Ms. Haley

603 Pero of Senator Sanders' office provided a verbal update on the recent bills proposed in Congress

604 that, if enacted, would impact the overall reactor decommissioning process within the United

605 States.

606

607 Senator Sanders and Congressman Welch recently introduced the Nuclear Plan

608 Decommissioning Act (co-sponsored by Senator Leahy) which provides a meaningful role for

609 states in the development and approval of nuclear power plant shutdown plans and post-

610 shutdown license transfers. The act has been proposed in prior Congresses, but the current

611 version incorporates feedback received in last year's nuclear decommissioning panel "best

612 practices" meetings. The current version of the bill includes funding provisions for panels such

613 as VT-NDCAP. The bill also provides regional economic development grants. The bill also

614 includes compensation to communities such as Vernon, VT for storing spent nuclear fuel.

615

616 Bills not approved during the current Congress (i.e., by the end of 2020) would need to be

617 reintroduced in the new Congressional session next year. Several additional bills co-sponsored

618 by Senator Sanders were briefly described:

- 619
- 620
- 621
- 622
- 623
- 624
- Informed Consent Act – requires the Department of Energy to receive local and tribal government consent before opening a nuclear fuel repository within their jurisdictions.
 - STRANDED Act – would compensate local communities for storing spent nuclear fuel.
 - Dry Cask Storage Act – would require nuclear power plants to move all spent fuel to dry cask storage within seven years. Noncompliant facilities would have their emergency planning zones expanded to 50 miles.

625 Additional bills not co-sponsored by Senator Sanders include:

- 626
- 627
- 628
- Nuclear Waste Administration Act – would create a new national agency solely for managing spent nuclear fuel. This bill includes provisions for creating a national spent fuel repository and would allow for consolidated interim storage provided that work on

629 a permanent repository continues. The date for opening a permanent repository would
630 be set as 2052.

- 631 • Nuclear Waste Policy Amendments Act – would allow private entity interim waste
632 storage facilities provided that local government consent was obtained.
- 633 • Jobs not Waste Act – prohibits Department of Energy from acting on Yucca Mountain
634 until a report on job-creating alternative uses for the Yucca Mountain site is produced.
635 Congressional hearings on alternate uses of the site would also be required.

636
637 Trump Administration budget requests for spent fuel storage were briefly highlighted. Early
638 Administration budget proposals included requests for Yucca Mountain funding. More recent
639 proposals have included requests for consolidated interim storage funding, but nothing for
640 Yucca Mountain. The budget compromises with Congress have not included funding for either
641 option.

642

643 **XI. The Issues Committee of NDCAP**

644

645 The Issues Committee, formed in 2015 and reconstituted in 2019, provides recommendations
646 for topics to be discussed at meetings of the Full Panel. The following Panel members served on
647 the Issues Committee during 2020: Josh Unruh, Lissa Weinmann, Madeline Arms, Chris
648 Company, Sara Coffey, Corey Daniels, Bob Leach, and Laura Sibia. Several additional Panel
649 members also participated in at least one of the Issues Committee meetings held during 2020:
650 David Pearson, Emily Davis and Marvin Resnikoff.

651

652 The Issues Committee met three times during 2020, in April, June and November. In addition to
653 identifying topics for discussion at Full Panel meetings, the Committee drafted the meeting
654 agendas for the May, September, and December Full Panel meetings. Additional topics discussed
655 during Issues Committee meetings included whether the Panel can and should take up national
656 issues such as Consolidated Interim Storage of spent fuel in other parts of the United States. The
657 Committee also discussed whether the Panel should consider publishing Advisory Opinions on
658 these topics. Written summaries and audio / webcast recordings of the Issues Committee
659 meetings are available at the NDCAP website.

660

661 **XII. Meeting Schedule and Priorities for 2021**

662

663 During the Panel's December meeting, it was agreed that the first Full Panel meeting for the new
664 year will occur on March 15, 2021. This will allow the Panel's newly formed Federal Nuclear
665 Waste Policy Subcommittee opportunity to organize, meet and come up to speed on
666 spent fuel concerns prior to the first Full Panel meeting of the year. Date selections for
667 individual meetings in 2021 will be influenced by reporting requirements in the Vermont
668 Yankee Sale Agreement (PUC Docket 8880 Approval Order, CPG and MOU) and significant
669 milestones during Vermont Yankee's active decommissioning and site restoration. Accordingly,
670 the Panel will likely meet in early to mid-May 2021 to receive summaries and State Agency

671 evaluations for the March 31, 2020 annual reporting required by the Vermont Yankee Sale
672 Agreement. Scheduling of subsequent Panel meetings to assure the required number of Panel
673 meetings occur in the 2021 calendar year will be decided during Full Panel meetings in 2021.
674

675 It is anticipated that most, if not all, of the Panel’s meetings in 2021 will be conducted as
676 webcasts due to the continuing COVID-19 pandemic.
677

678 **XIII. Panel Composition and Duties Change Recommendations**

679
680 Consistent with Panel Duties outlined in Part II of the Panel Charter (see Section II of this
681 Report), the Panel “shall assess further changes to the Panel’s membership or duties as
682 appropriate.” Discussion on potential Panel composition and duties changes occurred at several
683 Full Panel and Issues Committee meetings held in the latter half of 2019. At its January 13, 2020
684 meeting, the Panel created several changes to the Vermont Legislation establishing the Panel (18
685 VSA §1700 to §1702) based on these discussions. The Panel’s February 3, 2020 meeting
686 centered on means for funding Panel activities other than the Public Service Department’s
687 budget. Additional proposed changes to the Legislation establishing the Panel resulted.
688

689 The proposed Panel composition and duty changes approved at the Panel’s January and
690 February meetings are summarized in House Bill H.740, which is available online at:

691
692 <https://legislature.vermont.gov/bill/status/2020/H.740>
693

694 While these changes were approved by the Vermont House in 2020, they were not approved in
695 the Senate during the 2020 Session. The Panel requests that House Bill H.740 be reintroduced
696 during 2021 Session for further consideration.
